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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BELL, WILLIAM P	

ART UNIT	PAPER NUMBER
1745	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,303	LO PRESTI ET AL.	
	Examiner	Art Unit	
	WILLIAM BELL	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *36-70* is/are pending in the application.

5a) Of the above claim(s) *44-68* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *36-43,69 and 70* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *28 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/GB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 November 2011 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 36, 38, 39, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (Japanese Patent Publication No. JP-05031724, already of record) in view of Vinton (U.S. Patent No. 4,240,863) and Shirasaka (International Patent Application Publication No. WO 2003/041941), and further in view of Masuda (Japanese Patent Publication No. JP-03202326, already of record) and Schallmeier (European Patent Publication No. EP-0160857). U.S. Patent Application Publication No. US 2005/0034802 is an English version of Shirasaka, and citations to Shirasaka

below refer to US 2005/0034802. A machine translation of Schallmeier into English is also hereby made of record. Regarding claim 36, Hashimoto teaches an expandable bladder for tire vulcanizing apparatuses (see [0001]) having a toroidal conformation (one of skill in the art recognizes that such bladders are toroidal in shape), comprising at least one first layer of a first elastomer material and one second layer of a second elastomer material different from the first elastomer material (see [0007]); wherein the second layer is at a position radially external to the first layer and the first and second layers are mutually coupled along their interface (see [0007]).

Hashimoto teaches that the inner layer is preferably butyl rubber (see [0009]) and the outer layer is preferably silicone rubber (see [0011]). Hashimoto is silent regarding the construction of the bladder and the interface profile between the two elastomer materials. Vinton teaches that it is known in the art to produce a bladder for tire vulcanizing apparatuses by extruding continuous strip-like elements comprising rubber extending around the geometric axis of the bladder according to circumferential coils in side by side relationship (see column 1, lines 7-10 and 28-30; see column 3, lines 41-54; see Figure 1, wherein, when forming a bladder, extruder 10 extrudes strip 12 that is applied to a rotating core 14 in circumferential coils in a side by side relationship). Shirasaka teaches that it is also known in the art to extrude continuous strip-like elements wherein the strip-like elements comprise two layers of different rubber compounds, with one layer disposed radially external to the other (see [0039]. [0043], and [0048]; see Figures 1(a) and 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have produced the bladder taught by Hashimoto

by forming continuous strip-like elements having the two layers of rubber compounds in the manner suggested by Vinton and Shirasaka for the benefit of producing a bladder with controlled thickness and stretch of the rubber (see Vinton, column 1, line 49 through column 2, line 32 and column 2, lines 35-60).

Hashimoto, as modified by Vinton and Shirasaka, does not teach that the interface between the two layers of elastomer material has an undulated interface profile that defines mechanical engagement elements between the elastomer materials. Masuda teaches a bladder for vulcanization of tires comprising an inner layer of butyl rubber and an outer layer of silicone rubber, wherein the surface of the butyl rubber layer is made uneven to enhance adhesion and endurance of the bladder (see Abstract). Schallmeier teaches that it is known to extrude multiple layers of rubber such that the interface between the layers has an undulating profile that forms mechanical engagements between the layers (see [0001]-[0003] and Figures 2-4). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the bladder taught by Hashimoto by extruding the strip-like elements to have an interface profile that is undulated and defines mechanical engagement elements between the layers, as taught by Schallmeier, for the benefit of increasing the adhesion between the layers of the bladder (see Schallmeier, [0002]), particularly in view of Masuda's teaching that increasing adhesion between butyl rubber and silicone rubber in a bladder increases the durability of the bladder (see Masuda, Abstract). As shown by Schallmeier, the interface profile between the layers of rubber is such that each layer (i.e., each of the elongated elements of the continuous strip-like element) are each one

interposed between two mutually opposite sides of the other (see, for example, Figure 2 of Schallmeier; in this configuration, the interface has a saw tooth profile wherein the tooth of one layer is interposed between two mutually opposite sides of the other by the surrounding teeth of the other layer).

Regarding claims 38 and 39, Hashimoto, as modified by Vinton and Shirasaka, does not teach that the interface between the two layers of elastomer material has an undulated interface profile. Schallmeier teaches forming an interface between rubber layers that has an undulating profile with a pitch and height (see Figures 2-4). While Schallmeier does not teach specific values for the pitch and height of the profile structures, it would have been obvious to one of ordinary skill in the art at the time of the invention to have determined appropriate values for the pitch and height of the structures via routine experimentation to achieve the desired level of adhesion between the layers.

Regarding claim 43, Hashimoto teaches a bladder wherein the first elastomer material comprises a polymeric butyl base (see [0009]) and the second elastomer material comprises a polymeric silicone base (see [0011]).

4. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hashimoto (JP-05031724), Vinton (US 4,240,863), Shirasaka (WO 2003/041941), Masuda (JP-03202326), and Schallmeier (EP-0160857) as applied to

claim 36 above, and further in view of Applicant's admission of prior art. Hashimoto, as modified by Vinton, Shirasaka, Masuda, and Schallmeier, is silent regarding the structure of the edges of the bladder. However, applicant admits that it is known to provide bladders for vulcanization of tires with at least one circumferential edge carrying anchoring tailpieces (see page 2, lines 4-7 of the instant application). It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided the bladder taught by Hashimoto with anchoring tailpieces on the circumferential edges for the benefit of clamping the bladder in the vulcanization mold, as is well known in the art.

5. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hashimoto (JP-05031724), Vinton (US 4,240,863), Shirasaka (WO 2003/041941), Masuda (JP-03202326), and Schallmeier (EP-0160857) as applied to claim 36 above, and further in view of Andronaco (U.S. Patent No. 6,458,446). Hashimoto, as modified by Vinton, Shirasaka, Masuda, and Schallmeier, teaches a variety of interfacial profiles (see Figures 2-4 of Schallmeier), but does not teach a profile wherein the mechanical engagement elements have portions of mutual undercut constraint. Andronaco teaches an interface between two dissimilar materials, including rubber compounds, wherein mechanical engagement elements are formed such that they have portions of mutual undercut constraint (see column 1, lines 45-46 and column 2, lines 10-14; see Figure 3). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the interface profile in the bladder taught

by Hashimoto, as modified, to have portions of mutual undercut constraint, as taught by Andronaco, for the benefit of providing strong interlocking of the layers of dissimilar material (see column 5, lines 46-50 of Andronaco).

6. Claims 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hashimoto (JP-05031724), Vinton (US 4,240,863), Shirasaka (WO 2003/041941), Masuda (JP-03202326), and Schallmeier (EP-0160857) as applied to claim 36 above, and further in view of Mori (U.S. Patent Application Publication No. US 2003/0122284, already of record). Hashimoto, as modified by Vinton, Shirasaka, Masuda, and Schallmeier, is silent regarding additional layers of elastomer material in the bladder structure. Mori suggests that tire vulcanization bladders may be fabricated having more than two layers of elastomer material in the structure, so long as the total thickness does not become excessive (see [0033]). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the bladder taught by Hashimoto with additional layers of elastomer, both radially inward and outward, because Mori suggests that such bladders may be made with many layers of elastomer.

7. Claims 69 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (JP-05031724), Vinton (US 4,240,863), Shirasaka (WO 2003/041941), Masuda (JP-03202326), and Schallmeier (EP-0160857), and further in view of Cantarutti (U.S. Patent No. 3,464,090, already of record) and Heindel (U.S. Patent No. 5,939,002, already of record). Regarding claim 69, Hashimoto teaches an expandable

bladder for tire vulcanizing apparatuses (see [0001]) having a toroidal conformation (one of skill in the art recognizes that such bladders are toroidal in shape), comprising at least one first layer of a first elastomer material and one second layer of a second elastomer material different from the first elastomer material (see [0007]); wherein the second layer is at a position radially external to the first layer and the first and second layers are mutually coupled along their interface (see [0007]).

Hashimoto teaches that the inner layer is preferably butyl rubber (see [0009]) and the outer layer is preferably silicone rubber (see [0011]). Hashimoto is silent regarding the construction of the bladder and the interface profile between the two elastomer materials. Vinton teaches that it is known in the art to produce a bladder for tire vulcanizing apparatuses by extruding continuous strip-like elements comprising rubber extending around the geometric axis of the bladder according to circumferential coils in side by side relationship (see column 1, lines 7-10 and 28-30; see column 3, lines 41-54; see Figure 1, wherein, when forming a bladder, extruder 10 extrudes strip 12 that is applied to a rotating core 14 in circumferential coils in a side by side relationship). Shirasaka teaches that it is also known in the art to extrude continuous strip-like elements wherein the strip-like elements comprise two layers of different rubber compounds, with one layer disposed radially external to the other (see [0039]. [0043], and [0048]; see Figures 1(a) and 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have produced the bladder taught by Hashimoto by forming continuous strip-like elements having the two layers of rubber compounds in the manner suggested by Vinton and Shirasaka for the benefit of producing a bladder

with controlled thickness and stretch of the rubber (see Vinton, column 1, line 49 through column 2, line 32 and column 2, lines 35-60).

Hashimoto, as modified by Vinton and Shirasaka, does not teach that the interface between the two layers of elastomer material has an undulated interface profile that defines mechanical engagement elements between the elastomer materials. Masuda teaches a bladder for vulcanization of tires comprising an inner layer of butyl rubber and an outer layer of silicone rubber, wherein the surface of the butyl rubber layer is made uneven to enhance adhesion and endurance of the bladder (see Abstract). Schallmeier teaches that it is known to extrude multiple layers of rubber such that the interface between the layers has an undulating profile that forms mechanical engagements between the layers (see [0001]-[0003] and Figures 2-4). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the bladder taught by Hashimoto by extruding the strip-like elements to have an interface profile that is undulated and defines mechanical engagement elements between the layers, as taught by Schallmeier, for the benefit of increasing the adhesion between the layers of the bladder (see Schallmeier, [0002]), particularly in view of Masuda's teaching that increasing adhesion between butyl rubber and silicone rubber in a bladder increases the durability of the bladder (see Masuda, Abstract). As shown by Schallmeier, the interface profile between the layers of rubber is such that each layer (i.e., each of the elongated elements of the continuous strip-like element) are each one interposed between two mutually opposite sides of the other (see, for example, Figure 2 of Schallmeier; in this configuration, the interface has a saw tooth profile wherein the

tooth of one layer is interposed between two mutually opposite sides of the other by the surrounding teeth of the other layer).

Hashimoto, as modified by Vinton, Shirasaka, Masuda, and Schallmeier, is silent regarding the structure of the vulcanization mold and associated devices. Cantarutti teaches a vulcanization apparatus for tires of vehicle wheels comprising a mold having a plurality of cheeks and sectors adapted to define, by molding, a tread pattern on the tread band of the tire (see column 1, lines 53-56 and Figures 1 and 2); devices to supply heat to a green tire to be vulcanized to enable cross-linking of the green tire, the devices being operative associated with the mold (see column 3, lines 57-59); and an expandable bladder associated with the mold to exert pressure from the inside to the outside on the green tire, bringing the green tire into contact with the cheeks and section of the mold during the molding step (see column 1, lines 48-51). It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the bladder taught by Hashimoto, Vinton, Shirasaka, Masuda, and Schallmeier with the tire molding apparatus taught by Cantarutti for the benefit of producing vehicle tires. While Cantarutti does not teach that the sidewall molding surfaces form a plurality of graphic elements on the sidewall of the tire, such is well known in the art, as exemplified by Heindel (see Figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided the sidewall molding surfaces with graphic element forming surfaces for the benefit of providing commonly used indicia such as corporate logos and other tire identification information.

Regarding claim 70, Hashimoto, as modified by Vinton, Shirasaka, Masuda, and Schallmeier, is silent regarding the structure of the edges of the bladder. Cantarutti teaches a tire bladder than comprises at least one tailpiece formed at a circumferential edge of the bladder (see Figure 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided the bladder taught by Hashimoto with anchoring tailpieces on the circumferential edges for the benefit of clamping the bladder in the vulcanization mold, as is well known in the art.

Response to Arguments

8. Applicant's arguments with respect to claims 36-43, 69, and 70 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM BELL whose telephone number is (571)270-7067. The examiner can normally be reached on Monday - Thursday, 7:00 am - 4:30 pm; Alternating Fridays, 7:00 am - 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WILLIAM P BELL/
Examiner, Art Unit 1745